REMARKS

The foregoing amendment does not include the introduction of new matter into the present application for invention. Therefore, the Applicant, respectfully, requests that the above amendment be entered in and that the claims to the present application, kindly, be reconsidered.

The Office Action dated January 24, 2005 has been received and considered by the Applicants. Claims 1-14 are pending in the present application for invention. Claims 1-14 are rejected by the January 24, 2005 Office Action.

The Examiner takes Official Notice in that it is well known in the art that television sets or set top boxes execute client/server applications. The Examiner further states that it would be obvious to one skilled in the art that the invention of Kim et al. is operable on a television set or set top box in order to calculate tighter lower bound response time in the real-time television. The Applicants respectfully traverse the Examiner's taking of Official Notice that the invention as defined by Claim 13 and 14 would be obvious to a person skilled in the art. Kim et al. do not disclose or suggest implementing the Best Case Response schedulability disclosed therein for television sets or set top boxes. The Applicants respectfully request that the Examiner produce references clearly showing or suggesting to a person skilled in the art that the teaching of Kim et al. is operable on a television set or set top box.

The Office Action rejects Claims 1-12 under the provisions of 35 U.S.C. §102(a) as being anticipated by "Best Case Response Time Analysis for Improved Schedulability Analysis of Distributed Real Time Tasks" by Kim et al. (hereinafter referred to as Kim et al.).

Regarding Claims 1, 11, and 12, the Examiner states that Kim et al. disclose a method of determining a best-case response time of a first period task comprising a first step of determining that the first periodic task has a lower priority than a higher priority of a second periodic task on page 3. The Examiner further states that the Best Case Response Time (BCRT) taught by Kim et al. on page 3 disclose determining that the best case response time of the first periodic task is substantially equal to the difference between a start of the first periodic task and a completion of the first periodic task, the start being right after a release of the first periodic task and the completion

coinciding with a release of the second periodic task. The Applicants, respectfully, point out that that the BCRT as proposed by Kim et al. on page 3 does not provide any disclosure or suggestion for the start of the first periodic task being right after a release of the first periodic task and the completion of the first periodic task coinciding with a release of the second periodic task. Therefore, Kim et al. do not disclose all the elements as defined by the rejected claims.

        Regarding Claims 2-6, the Examiner states that Kim et al. teach determining a best-case response time for a first periodic task based upon a formula. The Applicants, respectfully point out that the rejected claims define subject matter for a determining a best-case response time of a first periodic task according to claim 1, wherein BR_i denotes the best-case response time of the first periodic task, BR_i being substantially equal to the largest value that satisfies the formula:

$$BC_i + \sum_{j \in hp(i)} \left(\left\lceil \frac{BR_i}{T_j} \right\rceil - 1 \right) BC_j$$

wherein BC_i denotes a best-case computation time of the first periodic task τ_i, $hp(i)$ denotes a set of tasks with a higher priority than the lower priority, T_j denotes a period of activation of a task j of $hp(i)$. The formula applied by Kim et al. on page 3 employ elements x_j denoting the next activation time that are subtracted from the minimum execution time. Thus, the formula as applied by Kim et al. is not at all equivalent to the formula applied by rejected Claim 2.

        Regarding Claim 3, the rejection contends that Kim et al. teach the subject matter defined therein. The Applicant, respectfully disagree. In addition to the differences discussed above, the Applicants assert that rejected Claim 3 defines subject matter for the best case response is initialized as the worst case response i.e. $BR_i(0)=WR_i$. The Applicants, respectfully point out that the BCRT Analysis of Kim et al. specifically teaches that c^{min} is used for $\Delta(0)$ and not c^{max}. Therefore, Kim et al. expressly teaches away from the subject matter defined by rejected Claim 3.

        Claim 4 and 5 further defines embodiment related to the worst case response of the first periodic task as discussed related to Claim 3 above.

        Regarding Claim 6, the Applicants, respectfully, point out that use of a formula of defined where a summation is taken. The Examiner has rejected the use of the formula in Claim 6 using the same rejection as applied to Claim 2. Claim 6 and Claim 2 recite different formulas,

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yet the rejection only cites the BCRT formula on page 3 of <u>Kim et al.</u> The Applicants, respectfully, assert that the formulas taught by <u>Kim et al.</u> do not disclose or suggest the use of the formula defined by Claim 6.

Therefore, this rejection of Claims 2-6 is, respectfully, traversed.

Regard Claims 7-10, the Examiner states that these claims are rejected for the same reason as Claims 1-3 and 6. Accordingly, this rejection is traversed for the same reasons as previously stated for Claims 1-3 and 6.

The Office Action rejects Claims 13 and 14 under the provisions of 35 U.S.C. §103(a) as being unpatentable over "Best Case Response Time Analysis for Improved Schedulability Analysis of Distributed Real-Time Tasks" by <u>Kim et al.</u> (hereinafter referred to as <u>Kim et al.</u>). The Examiner takes Official Notice in that it is well known in the art that television sets or set top boxes execute client/server applications. The Examiner further states that it would be obvious to one skilled in the art that the invention of <u>Kim et al.</u> is operable on a television set or set top box in order to calculate tighter lower bound response time in the real-time television. The Applicants respectfully traverse the Examiner's taking of Official Notice that the invention as defined by Claim 13 and 14 would be obvious to a person skilled in the art. <u>Kim et al.</u> do not disclose or suggest implementing the Best Case Response schedulability disclosed therein for television sets or set top boxes. The Applicants respectfully request that the Examiner produce references clearly showing or suggesting to a person skilled in the art that the teaching of <u>Kim et al.</u> is operable on a television set or set top box.

Regarding Claims 13 and 14, the Examiner states that <u>Kim et al.</u> teach calculating a tighter lower bound on response time real-time systems based on BCRT and WCRT. The Examiner further states that the study of <u>Kim et al.</u> can be extended to real-time client/server applications with different communication patterns. The Examiner admits that <u>Kim et al.</u> does not teach that the system is a television set, however, the Examiner employs Official Notice that it is well known in the art that television sets or set top boxes to employ client/server applications. The Examiner further states that it would be obvious to one skilled in the art that the invention of <u>Kim et al.</u> is operable on a television set or set top box in order to calculate tighter lower bound response time in the real-time television. The Applicants would like to, respectfully, point out that no

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reference has been cited that refers to or suggests that <u>Kim et al.</u> is operable on a television set or set top box in order to calculate tighter lower bound response time in the real-time television. As previously stated, the Applicants, request that the examiner produce references that illustrate that it is possible or desirable to operate the system as taught by <u>Kim et al.</u> on a television set or set top box in order to calculate tighter lower bound response time in the real-time television. Therefore, this rejection is, respectfully, traversed.

New Claims 15-18 have been added by the foregoing amendment. New Claims 15-18 define subject matter similar to Claims 13 and 14, as well as subject matter that is supported by the bottom of page 12 of the specification. Therefore, examination of new Claim 15-18 will not result in the introduction of new matter into the specification of the present invention.

Applicant is not aware of any additional patents, publications, or other information not previously submitted to the Patent and Trademark Office which would be required under 37 C.F.R. 1.99.

In view of the foregoing amendment and remarks, the Applicant believes that the present application is in condition for allowance, with such allowance being, respectfully, requested.

Respectfully submitted,

By: _James D. Leimbach (signature)_

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